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ABSTRACT

This paper describes the DARCEE curriculum designed to prepare young disadvantaged children for school. The emphasis of the curriculum is on the development of information processing skills, rather than on the learning of specific information. The curriculum is implemented in the form of a sequentially programmed, structured instructional program. The skill development objectives follow the basic stages in the processing of information and are categorized under either Sensory skills, Abstracting and Mediating skills, or Response skills. Sensory skills include all the processes of successful input and decoding of environmental stimuli, involving the orienting skill, the discriminatory skill, the relational skill, and the sequential skill. The DARCEE curriculum also develops the Abstracting and Mediating skills. These skills comprise the Organization process, the areas of which have been designated as Basic Concept Development Association, Classification Sequencing, and Critical Thinking. The Response or Output skills concentrated on by the DARCEE curriculum are those of fine eye-hand coordination and verbalization. The content of the curriculum is ordered into interrelated units whose themes were chosen because they would be of interest to children. The need for a change in attitudes and curricula in our public school systems is stressed. (MH)

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A SKILL DEVELOPMENT CURRICULUM FOR 3, 4, AND 5 YEAR OLD DISADVANTAGED CHILDREN

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The instructional program of the DARCEE Early Training Centers is research-oriented. Its primary purpose is to implement research objectives on a minute-to-minute, day-to-day, month-to-month, and year-to-year basis through a curriculum sequentially organized to realize the goals of the research design. The major research goal is to develop in the preschool-age disadvantaged child the aptitudes and the attitudes which past research has shown to be correlated with academic achievement. Our responsibility has been to develop a comprehensive developmental curriculum to foster socialization for competence--development of the cognitive skills for environmental mastery and the sustaining motivations necessary for continued growth.

This paper will focus on the theoretical basis for the skill development program and will present the curriculum model as it exists after three years of development and refinement. The instructional program will be discussed in terms of the skill development objectives of the curriculum and the role which content plays in the implementation of the goals.

I. Skill Development Program

Initial work with young disadvantaged children in our first Early Training Center revealed evidence to support previous research findings that, as a group, these children exhibit skill deficits in all areas of informational processing--those skills necessary to perceive and discriminate environmental stimuli, to order this information in a conceptual framework, and to express the results of this structuring process. These are the skills necessary for cognitive growth and the development of intellectual competency. There is research evidence that these organizing and structuring skills are learned. As the child learns to impose order and structure upon his environment, he is able to process information more economically and efficiently. Unfortunately, the home environment of these children is strikingly lacking in structure and organization, both temporally and spacially. Our goal was to develop an instructional program which could help the disadvantaged child develop the skills to impose order and structure upon the environmental chaos in which he finds himself.

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After the skill deficits of these children were determined, a curriculum framework was designed based on an informational processing model. Using as a guide the basic stages in the processing of information, the skill development objectives were organized in three categories of processing skills--Sensory Skills, Abstracting and Mediating Skills, and Response Skills. Each of these three skill groups is subdivided into skill objectives which, through continuous refinement, have been translated into sequences of specific behavioral expectations. The skill development program will be outlined by exploring each one of the three skill divisions and their component parts.

Sensory Skills. The first division of skills, Sensory Skills, can be labeled "Input" skills. These are the processes which must operate in order to receive and decode environmental stimuli through the senses. The skill development program was carefully constructed to consider all of the conceptual dimensions used by the major sense modalities--visual, auditory, tactile-kinesthetic, taste-olfactory--in the ordering process. Such conceptual areas as color, shape, size, volume, time, texture, temperature are a few of the relatively invariant dimensions for the organization of environmental stimuli. These areas were then task-analyzed according to the sensory processes needed to assimilate information.

The most basic sensory process is what we call the Orienting or Attentional skill. This is a basic learning skill whereby a child learns to focus attention on the relevant stimuli in his environment. For example, in dealing with the visual modality, our concern is that the child develops an awareness of color, size, shape, position, number, etc., as consistent conceptual dimensions by which he can order the visual stimuli he receives. In the initial stages of the classroom program, we attempt to develop the Orienting skill by carefully controlling stimuli in order to make salient those which are relevant.

A second sensory process is the Discriminatory skill--the ability to perceive likenesses and differences between stimuli received by the four sensory modalities. A more complex process is involved with the Relational skill where a child must deal with interrelated stimuli which occur simultaneously. An example of this skill in the visual modality is the child's ability to work a puzzle by perceiving the relationships among the parts and constructing the whole. The fourth sensory process is the Sequential skill by which the child learns to perceive a repeating pattern of stimuli which occur in a certain spacial or temporal order.

The development of each one of these four sensory skills, for each of the sensory modalities, is programmed over time through a carefully developed sequence of behavioral expectations which require increasingly finer and more precise discrimination, with stimuli which become more complex and abstract. For example, the Discriminatory skill in the visual modality begins at a gross level with the perception of likenesses and differences of whole concrete objects (as with two cups and a spoon) and then moves to discriminations among similar objects on the basis of likeness and difference in parts, color, size, shape, number, or position. As this skill is gradually refined, the child is able to discriminate fine differences among

small, detailed, abstract configurations and symbols such as designs, words, numerals, and letters.

Abstracting and Mediating Skills. The second division of informational processing skills, Abstracting and Mediating Skills, is concerned with what could be termed "Organization" processes. This area includes skills which are critical in the assimilation of stimuli into a logical and orderly cognitive framework to facilitate retrieval of information and to foster transfer of learning. We have designated these areas as Basic Concept Development, Association, Classification, Sequencing, and Critical Thinking. As the child learns to focus attention on relevant stimuli in his environment and develops the ability to discriminate among stimuli perceived through the four sensory modalities, basic concepts begin to develop based on the invariant conceptual dimensions used in the sensory ordering process.

The area of Basic Concept Development includes such concepts as color, shape, size, number, position, volume, texture, weight, temperature, motion, speed, taste, time, age, affect. Through Association processes, the child builds connections between objects, events, and concepts which are spacially, temporally, or functionally related. He learns to associate labels with every object, action, sound, and concept he encounters. He learns to associate basic concepts to develop higher-level concepts. For example, concepts of color, shape, size, number, texture, motion, etc., are used as "building blocks" to form the concept of a particular animal.

We work on the assumption that the more sophisticated Classification skills develop through the process of association. During planned activities, the child is directed to associate or group certain objects or concepts which all share a particular characteristic to form a class of objects or concepts defined by the common characteristic. The child learns to classify deductively be sorting concepts with a common characteristic into their appropriate categories which are identified by the teacher. He then learns to classify inductively, by abstracting a shared characteristic of given objects or concepts and formulating the class defined by the common characteristic. Activities are sequenced to increase the amount of conceptual differentiation demanded of the child and to move the child from the classification of objects or concepts using concrete or representational materials to the classification of objects or concepts using verbal labels only.

Sequencing skills are the tools used by the child to arrange experiences in a logical spacial or temporal order. These are the mediating skills utilized by the child in ordering motor and verbal responses when dramatizing the action patterns of stories or events; when executing a series of verbal directions; when verbalizing the serial order of numbers, days of the week, seasons of the year;and when verbalizing the sequence of episodes of familiar stories and events or activities which the child has experiences. Eventually the child utilizes this skill at a very abstract and complex level as he learns to develop his own stories exhibiting a sequence of events in a logical order. In activities of this type, the child is also using many complex Critical Thinking processes which are emphasized in the program when working with stories and problem situations. These are the very complex and abstract skills of drawing relationships, making inferences,

analyzing problems, synthesizing ideas, hypothesizing, evaluating, drawing analogies, and analyzing absurdities. With the Abstracting and Mediating Skills, as with Sensory Skills, the curriculum is organized to develop increasingly more sophisticated schemata for organizing information to encourage the continuous segmentation and differentiation of the child's cognitive field.

Response Skills. The third division of informational processing skills, Response Skills, can be called "Output" skills. These are the processes required to express, through both motor and verbal responses, the resultant product of the decoding and organizational processes. The curriculum for this process area is designed to develop the verbal and small motor coordination skills essential for self-expression and the effective communication of thought processes. The objectives for the Motor Response Skills are concerned primarily with the development of eye-hand coordination since these particular children tend to be extremely well coordinated in tasks involving gross motor skills. Again, as with Sensory Skills, classroom activities are sequenced throughout the program to refine coordination from the relatively gross control required in manipulating objects, modeling with clay, painting on large surfaces, drawing, stringing beads, and cutting to the fine control required in tracing, following dots, coloring in small areas, and printing.

The objectives in the sub-division of Verbal Response Skills are concerned with both quantity and quality of verbalization. The learning milieu of the classroom is organized to stimulate individual expression. Each child spends approximately two-thirds of his time in a small group situation with four other children and a teacher. Individual expression is constantly reinforced with verbal praise, with physical gestures of approval, and, initially, with a concrete reward. Many activities are planned and many instructional devices are utilized to augment the quantity of verbalization. Conversation of child with teacher and child with child is encouraged particularly in small groups during the smack and lunch periods.

Quality in verbalization is developed through the use of very carefully programmed reinforcement schedules to realize continuous improvements in articulation and in sentence structure. The child is reinforced for closer and closer approximations of complete sentence structure in encoding declarative (affirmative and negative) and interrogative statements. Lessons are planned whereby the child can develop the ability to use present, past, and future tense forms in actual situations. Certain sentence patterns are reinforced because they demonstrate evidence of complex thinking operations: negative statements used in classification activities to indicate objects or concepts which do not belong to a designated class; comparative statements used to describe the relationship between two objects exhibiting comparative forms of polar concepts of size, texture, weight, etc., "if-then" statements used to state deductions when certain qualifying conditions are given; statements with "or" used to imply choice. Succinctness of expression is developed by encouraging the child to reduce redundancy in consecutive sentences through consolidation of adjectives, verbs, and nouns using the coordinating conjunction "and".

Use of "standard" grammatical forms and sentence patterns (a reflection of environment and thought process) is secondary in importance to the ability to use many variant forms employed in both the child's environment and a school-type situation. The child is encouraged to decode and encode gramatical and structural alternative forms, a skill without which comprehension handicaps and communication impediments could develop with individuals from differing environments in a later school-learning situation.

II. Content

As previously stated, the focus of the curriculum is not on the learning of specific information but is on the development of skills needed to process information more effectively. The basic conceptual skills are assumed to be relatively invariant while content changes over time. Much more important than changing content is the ability to recognize a set of three or five; to understand the position concepts before, behind, or through; and to discriminate rough from smooth or hot from cold. Content plays the rôle of the vehicle for the development of skills. Although the content is subsidiary in importance to skill development, it must be carefully selected and organized to ensure maximal opportunities for the development of the informational processing skills.

A unit approach for ordering content was adopted on the assumption that learning experiences organized around a central theme would encourage more meaningful learning for the child. In addition, this organizational plan would aid the teacher in presenting the learning situations in an order of increasing complexity and abstraction, following the sequencing directions for skill development. In the implementation of the unit approach, both the activities within a unit and the units themselves are sequenced to augment the continuing growth of more abstract and complex skills. Units chosen for the initial stages of the classroom program are those which provide opportunities for the development of Sensory Skills and basic concepts in very concrete situations. Subsequent units utilize these basic learning skills and concepts to build higher-level concepts and to develop skills in organizing and expressing experiences.

By using an interrelated unit approach, each successive unit utilizes concepts and skills in each of the preceding units and develops then to a higher-level of sophistication. For example, the first unit used is about the child himself. The content is exciting to the child and obviously offers the most concrete and real situations for learning. The concepts and skills developed here are transferred to and repeatedly utilized in a sequence of units on family and home, neighborhood, and city. With this interrelated unit approach, skills in experiencing, in organizing experiences, and in expressing experiences become increasingly more refined and complex. The child is steadily carried from proximal to distal situations in space orientation, encouraging him to move from reliance on perceptual media into the use of conceptual and language media for learning.

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Similarly a sequence of units on animals moves the child from the concrete, proximal environment to the abstract, distal environment beginning with pets, followed by farm animals, small woods animals, and finally large wild animals. This series of units provides maximum opportunities for developing Association and Classification skills using both basic concepts and more complex concepts as the building blocks for class formation. A series of units on the four seasons provides opportunities to develop Sensory Skills and concepts basic to seasonal change and to review and expand them over a period of one full year. This series is particularly effective in developing Association skills and in encouraging the drawing of relationships between seasons as their sequential order is recognized.

Although the units which have been implemented appear very similar to those of most preschools, our curriculum approach is far different. The content itself is not the primary focus; the main thrust is on the aptitude development. The DARCEE instructional program, therefore, makes a pronounced departure from the traditional nursery school program. It is a structured program in which every moment has a designed instructional purpose in terms of an established objective.

The rationale for a structured instructional program which is sequentially programmed and conscientiously implemented is formulated on the basis of previous research projects with disadvantaged children. Studies have consistently indicated that culturally deprived children do not come to school with the experiential background of middle-class children, and, therefore, are placed immediately at a disadvantage. Achievement grades and intelligence scores of these children indicate a pattern of accelerating decline over the school years. In addition, learning studies have shown that deprived children do not learn incidentally but do benefit from direct instruction. We cannot assume that in the framework of a traditional program these skills for achievement would develop. This view would be a romanticism which we cannot afford. Our program is designed to meet the particular needs of our children. Rather than accommodating our objectives to match their particular learning deficits, we have established a high goal: to take their very skill weaknesses and develop them into competencies for coping with the environment.

It would be naive to assume, however, that preschool intervention would be a panacea for all the problems which are characteristic of these children. Indeed, results of early intervention projects have shown that gains are not necessarily sustained as the subjects move through the public schools. There is a crying need for a total system change in our school programs in order to assimilate these groups of very different children. Both attitudes and curricula must be altered if these children are to retain and augment the competencies which programmed early intervention can develop.

DIAGRAM OF DARCEE CURRICULUM MODEL

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I. SENSORY SKILLS

Orienting and Attentional
- Visual
- Auditory
- Tactile-Kinesthetic
- Taste-Olfactory

Discriminatory
- Visual
- Auditory
- Tactile-Kinesthetic
- Taste-Olfactory

Relational
- Visual
- Auditory

Sequential
- Visual
- Auditory

II. ABSTRACTING AND MEDIATING SKILLS

Basic Concept Development

color	pitch	speed
shape	length	taste
size	volume (aud.)	flavor & odors
number	texture	time
position	weight	age
volume	temperature	affect
	motion	

Association
1. Objects with objects - functionally, spacially, temporally
2. Labels with objects, sounds, actions, concepts
3. Labels with labels

Classification
1. Deductive classification
2. Inductive classification

Sequencing
1. Motor - sequencing series of actions, directions, events
2. Verbal - sequencing a series of concepts, events

Critical Thinking
1. Drawing relationships
2. Making inferences
3. Making predictions
4. Analyzing problem-situations
5. Synthesizing ideas
6. Hypothesizing
7. Evaluating
8. Drawing analogies
9. Analyzing absurdities

III. RESPONSE SKILLS

A. Verbal

Fluency

Articulation

Syntax
- a. Single-word level - identification of objects, actions, sounds, concepts
- b. Phrase level
- c. Complete sentence level
  - simple declaratives
  - interrogatives
  - negatives
  - "and" statements
  - "or" statements
  - "if-then" statements
  - "I don't know" statements
  - complex sentence -- adverbial clauses

B. Motor

Small-Motor Coordination (eye-hand coordination)

pasting	cutting
modeling	lacing & weaving
painting	tracing
coloring	solving mazes
stringing	following dots
drawing	printing

Orientation
- left-to-right progression
- top-to-bottom progression
- front-to-back progression